REMARKS

The drawings now comply with 37 CFR 1.84(p)(5)

The drawings were objected to in the Office Action because the drawings included reference numeral 14, which was not referenced in the written specification. Applicant has herein amended paragraph 30 of the specification to include reference numeral 14. No new matter was added to the specification by this amendment. As such, the drawings now comply with 37 CFR 1.84(p)(5) and Applicant requests the reconsideration and withdrawal of the objection thereto.

Claims 10-12 and 14 Are Not Indefinite Under 35 U.S.C. §112

Each of claims 10, 12, and 14 have been amended to eliminate any reference to the terms "Inconel" and "Kovar" therein by replacing each occurrence of the terms "Inconel" and "Kovar" therein with chemical compositions of the particular alloys. Applicant submits that the chemical compositions of Inconel and Kovar materials are, and were on the priority date of the present application, known to those of ordinary skill in the art and are inherently described in specification of the application by reference to the trademarks Inconel and Kovar. Thus, no new matter has been added by said amendments to the claims. As evidence of the chemical compositions of the "Inconel" and "Kovar," Applicant submits the material data sheets herewith as Exhibit A. As such, Applicant request the withdrawal of the objections made under 35 USC §112 to claims 10, 12, and 14.

Claim 11 has been amended to change its direct dependency from claim 10 to claim 9. As such, the objection to claim 11 is moot and Applicant therefore requests the

withdrawal of the objection made under 35 USC §112 to claim 11.

Claims 1, 3-14, 16-19, and 22 Are Not Obvious In View Of The Prior Art

Independent claim 1 requires, among other things, the sealing end of the probe to be hermetically sealed to the vessel via a metal-to-glass-to-metal seal, and requires at least a portion of the probe within the internal cavity of the vessel to be devoid of any glass extending therearound. Even in combination, the prior art fails to disclose a vessel having a capacitance probe that is hermetically sealed to the vessel via a metal-to-glass-to-metal seal, with at least a portion of the probe within the internal cavity of the vessel to be devoid of any glass extending therearound. Whitney discloses a conventional mixing vessel having a baffle shaft extending into the vessel wherein the baffle shaft and the vessel wall are coated in layer of glass. Whitney further discloses placing an electrode strip on the glass layer of the baffle and thereafter applying a second layer of glass over the baffle inside the container. Whitney touts the elimination of the need for a separate entry into the vessel for a capacitance probe and the resulting elimination of an additional "expensive and complicated pressure seals" as an advantage over the prior art. Whitney, col. 2:3-19. Whitney does not disclose the configuration of any particular hermetic seal of a vessel and therefore fails to teach or suggest a metal-to-glass-to-metal hermetic seal as required by claim 1. Furthermore, the foil strip that constitutes the probe in Whitney's vessel, is completely surrounded by glass and therefore the probe lacks any portion within the internal cavity of the vessel that is devoid of any glass extending therearound, as is also required by claim 1.

Notably, claim 1 is directed to a bubbler comprising an outlet extending through the outer wall of the vessel that is adapted and configured to allow gas to pass from the internal cavity of the vessel to an environment external to the vessel, and a conduit extending through the outer wall of the vessel and into the internal cavity of the vessel that is adapted and configured to allow a gas to be pumped into the internal cavity of the vessel. Franz discloses such a bubbler with a probe but does not disclose a metal-to-glass-to-metal seal at the sealing end of the metallic probe. Franz also fails to disclose the use of glass in any portion of the probe, vessel, or sealing members. As such, even in combination, Franz and Whitney fail to teach or suggests any bubbler comprises a probe that is hermetically sealed to the vessel wall via a metal-to-glass-to-metal seal. For these reasons, Franz and Whitney can not possibly teach or suggest each and every limitation of claim 1 and therefore claim 1 is not obvious in view of the prior art. It follows then that claims 3-14 and 16-19, being dependent upon claim 1, are also not obvious in view of the prior art.

Claim 22, requires, among other things, a method of monitoring the level of an organometallic compound in a vessel that includes a step of hermetically sealing the sealing end of a probe within the vessel via a metal-to-glass-to-metal seal. As discussed above, neither Franz nor Whitney disclose the use of a metal-to-glass-to-metal seal to hermetically seal a capacitance probe to the wall of a vessel. As such, claim 22 is not obvious in view of the prior art.

Conclusion

In view of the above, Applicant requests reconsideration and withdrawal of the rejections made to the claims.

Respectfully submitted,

Thompson Coburn LLP

By: _____

Clyde L. Smith
Reg. No. 46,292
One US Bank Plaza
St. Louis, MO 63101-1693
(314) 552-6338
(314) 552-7338 (fax)

Lees, Kate J

From: Cunning, Hugh [CunningH@epichem.co.uk]
Sent: 27 January 2006 09:41
To: Rushworth, Simon
Subject: Alloy X750 - Electronic Alloys

QUANTUM ALLOYS LTD

E-mail sales@quantumalloys.com
Tel. 44 (0) 8708 799001/2 Fax. 44 (0) 8707 652 267/8

Cupro - Nickel	HYMU 80	Kovar	Molybdenum	Mi
Nickel 200 & 201	Nickel 400	Nickel 500	Nickel 600, 601, 625	Nickel 7
Nickel Chrome	Nickel Silver	Stainless 300 Series	Tantalum	Tit
Tungsten	Alloy 42 - F30	Invar 36	Alloy 45	Al
Alloy 47/50	Alloy 48	Alloy 49	Alloy 52	OFHC

Request for Quotation

ALLOY 625 | ALLOY 718 | ALLOY X750 | SHEET | COIL/FOIL | ROD | PRODUCT

Nickel 600

NOMINAL DATA SHEET

CHEMICAL COMPOSITION

C - .15max
Mn - 1.00max
S - .015max
Si - .50max
Cr - 14/17
Ni - 72.0
Cu - .50max
Fe - 6/10
Al - .35max
Ti - .50max
Cb+Ta - 1.0max
Co - 1.0max

TYPICAL APPLICATIONS

Furnace Muffles
Electronic and Electrical Components
Jet Engine Parts
Springs
Chemical and Food Processing Equipment
Bellows

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PHYSICAL PROPERTIES (ANNEALED CONDITION)

Modulus of Elasticity, Tension 10(******)psi - 31.0

Magnetic permeability at 200H(At 70 F) - 1.010
Electrical Resistivity, Microhm-cm(At 70 F) - 103
Density, lb/cu.in. - .304
Coefficient of Thermal Expansion, in./in./ F x 10(-******)
70 - 200 F 7.4
70 - 400 F 7.7
70 - 800 F 8.1
70 - 1000 F 8.4

NOMINAL MECHANICAL PROPERTIES (ANNEALED CONDITION)

Ultimate Tensile Strength, psi - 90,000
0.2% Offset Yield Strength, psi - 31,000
Elongation in 2 inches percent - 40
Hardness, Rockwell - B65

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Alloy 625

NOMINAL DATA SHEET

CHEMICAL COMPOSITION

Cu - .10max
Mn - .50max
P - 0.15max
S - 0.15max
Si - .50max
Cr - 20/23
Ni - Balance
Mo - 8/10
Fe - 5.0max
Al - .40max
Ti - .40max
Cb+Ta - 3.15/4.15
Co - 1.0max

TYPICAL APPLICATIONS

Ducting Systems
Springs
Fuel Nozzles
Jet Engine Parts
Honeycomb

PHYSICAL PROPERTIES (ANNEALED CONDITION)

Modulus of Elasticity, Tension 10(******)psi - 30.0
Magnetic permeability at 200H(At 70 F) - 1.001
Electrical Resistivity, Microhm-cm (At 70 F) - 129
Density, lb/cu.in. - .305
Coefficient of Thermal Expansion, in./in./ F x 10(-******)
70 - 200 F 7.1
70 - 400 F 7.3

70 - 800 F 7.6
70 - 1000 F 7.8

NOMINAL MECHANICAL PROPERTIES (ANNEALED CONDITION)
Ultimate Tensile Strength, psi - 130,000
0.2% Offset Yield Strength, psi - 68,000
Elongation in 2 inches percent - 42
Hardness, Rockwell - B65

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Alloy 718

NOMINAL DATA SHEET

CHEMICAL COMPOSITION

C - .08max
Mn - .35max
P - .015max
S - .015max
Si - .35max
Cr - 17/21
Ni - 50/55
Mo - 2.8/3.3
Cu - .30
Fe - Balance
Al - .20/.80
Ti - .65/1.15
Cb+Ta - 4.75/5.50
Co - 1.0max
B - .006max

TYPICAL APPLICATIONS

Jet Engine Parts
Pump Parts
Rocket Motors Casings
Aerospace Components
Nuclear Reactor Fuel
Support Grids

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PHYSICAL PROPERTIES (ANNEALED CONDITION) **

Modulus of Elasitcity, Tension 10(******) psi - 29.0
Magnetic permeability at 200H(At 70 F) - 1.001
Electrical Resistivity, Microhm-cm(At 70 F) - 121
Density, lb/cu.in. - .296
Coefficient of Thermal Expansion, in./in./ F x 10(-******)
70 - 200 F 7.2
70 - 400 F 7.8
70 - 800 F 8.1
70 - 1000 F 8.2
** (Aged)

NOMINAL MECHANICAL PROPERTIES (ANNEALED CONDITION)

Ultimate Tensile Strength, psi - 130,000
0.2% Offset Yield Strength, psi - 67,000
Elongation in 2 inches percent - 41
Hardness, Rockwell - B90

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Alloy X750

NOMINAL DATA SHEET

ALLOY X750 CHEMICAL COMPOSITION		ALLOY X750 TYPICAL APPLICATIONS
C - .08max	Al - .4/1.0max	Vacuum Envelopes
Mn - .35max	Ti - 2.25/2.75max	Bellows
P - .015max	Cb+Ta - .7/1.2	Aircraft Sheet
S - .015max	Co - 1.0max	Steam Service
Si - .35max		Springs
Cr - 14/17		
Ni - 70.0		
Cu - .50max		
Fe - 5/9		

PHYSICAL PROPERTIES (ANNEALED CONDITION) **

Modulus of Elasitcity, Tension 10(******)psi - 31.0
Magnetic permeability at 200H(At 70 F) - 1.0035
Electrical Resistivity, Microhm-cm (At 70 F) - 122
Density, lb/cu.in. - .298
Coefficient of Thermal Expansion, in./in./ F x 10(-******)
70 - 200 F 7.0
70 - 400 F 7.1
70 - 800 F 7.8
70 - 1000 F 8.1
** (Aged)

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NOMINAL MECHANICAL PROPERTIES (ANNEALED CONDITION)

Ultimate Tensile Strength, psi - 112,000
0.2% Offset Yield Strength, psi -46,000
Elongation in 2 inches percent - 45
Hardness, Rockwell - B80

NICKELS 600/601/625/718/750		
SHEET	COIL/FOIL	ROD
.050	.003	.125
.062	.004	.250
.078	.005	.312
.109	.010	.437
.125	.015	.500
.140	.020	.625
.250	.030	.750
.375	.040	.875
.500	.050	1.00
.750	.062	1.25
1.00		1.50
		1.75
		2.00
		2.25
		2.50
		3.00
		3.50
		4.00
		5.00
		5.50
		6.00

***NOTE: Other sizes available upon request.**

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Lees, Kate J

From: Cunning, Hugh [CunningH@epichem.co.uk]
Sent: 27 January 2006 09:38
To: Rushworth, Simon
Subject: inconel

Special Metals INCONEL® C276 Nickel Superalloy Tubing, 30% C

Printer friendly version
Download to Excel (requires Excel and Windows)
Export data to your CAD/FEA program

Subcategory: Metal; Nickel Base; Superalloy

Component	Wt. %	Component	Wt. %	Component	Wt. %
C	Max 0.01	Mn	Max 1	S	Max 0.03
Co	Max 2.5	Mo	15 - 17	Si	Max 0.08
Cr	14.5 - 16.5	Ni	59	V	Max 0.35
Fe	4 - 7	P	Max 0.04		

Material Notes:
Nickel content calculated as remainder.

Tensile strength (ultimate and yield) and elongation values reported here are typical for annealed + 30% cold typical of INCO® C276.

Data provided by the manufacturer, Special Metals.

Click here to view available vendors for this material.

Physical Properties	Metric	English
Density	8.89 g/cc	0.321 lb/in³

Mechanical Properties		
Tensile Strength, Ultimate	1150 MPa	166600 psi
Tensile Strength, Yield	987 MPa	143200 psi
Elongation at Break	28 %	28 %
Modulus of Elasticity	205 GPa	29700 ksi
Poisson's Ratio	0.307	0.307
Shear Modulus	79 GPa	11500 ksi
Electrical Properties		
Magnetic Permeability	1.0002	1.0002
Thermal Properties		
Specific Heat Capacity	0.427 J/g-°C	0.102 BTU/lb-°F
Thermal Conductivity	9.8 W/m-K	68 BTU-in/hr-ft²-°F
Melting Point	1325 - 1370 °C	2420 - 2500 °F
Solidus	1325 °C	2420 °F
Liquidus	1370 °C	2500 °F

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistant format. engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the calculations to minimize rounding error. We also ask that you refer to MatWeb's disclaimer and terms of use regarding this information. Click here to view all t entered into MatWeb.

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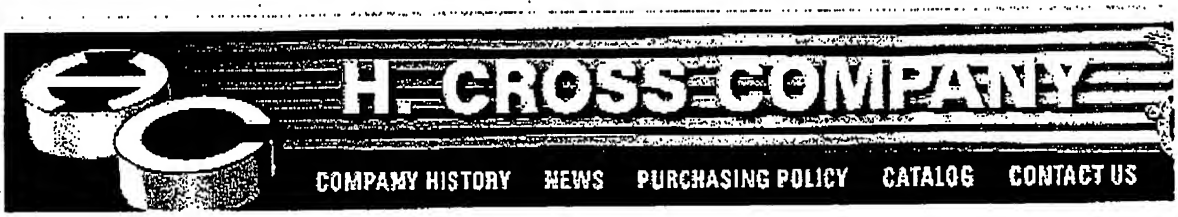
Lees, Kate J

From: Cunning, Hugh [CunningH@epichem.co.uk]
Sent: 27 January 2006 09:42
To: Rushworth, Simon
Subject: Kovar Products



Kovar®

Table of Contents

Introduction

Kovar® is a registered trademark of Carpenter Technology Corporation

Chemistry By % Weight

C	0.02% Max
Co	17%
Fe	Balance
Mn	0.3%
Ni	29%
Si	0.2%

Typical Mechanical Properties

Ultimate Tensile Strength	75,000 PSI
Yield Strength	50,000 PSI
Elongation @ Break	30%
Modulus of Elasticity	20,000 KSI
Poisson's Ratio	0.317

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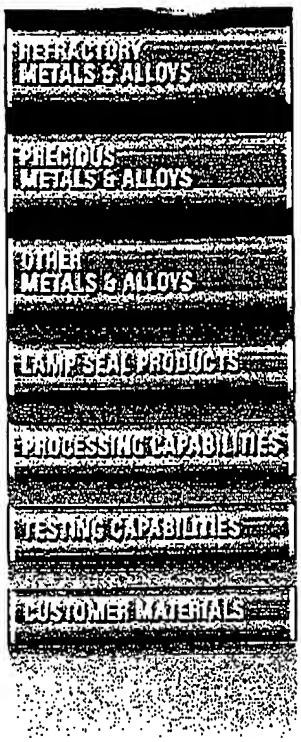
Typical Physical Properties

Density	0.302 lbs/cu in



Melting Point	1450° C
Electrical Resistivity @ RT	4.9 Microhm-cm
Thermal Conductivity @ RT	17.3 W/m-K
Coefficient of Thermal Expansion Linear at 20° C	3.26 µin/in-°F
At 250°	2.85 µin/in-°F
At 500° C	3.42 µin/in-°F

Kovar® is a vacuum melted Fe-Ni-Co low expansion alloy that has its c composition controlled to tight tolerances assuring precise and uniform expansion properties. Kovar is commonly used for making hermetic sea glass. It has also found wide application in power tubes, microwave tub diodes and transistors.

Forms

H Cross Company can provide Kovar in wire, ribbon, strip, sheet and fo suit your particular needs. Please refer to our Standard Dimension and Tolerances page for general size ranges of products. If you do not see y required size list contact us via email or phone for further information c assistance.

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